

What is claimed is:

1. A steering wheel mounting assembly comprising:
  - a stationary support carrier defining first and second ring receiving areas and being constructed and arranged to be fixed to a vehicle frame;
  - a first drive ring having a first cylindrical raceway and being supported in the first ring receiving area and constructed and arranged for connection to a steering wheel;
  - a second drive ring having a second cylindrical raceway and being positioned in the second ring receiving area and constructed and arranged for connection to a steering shaft, the second cylindrical raceway being concentric with the first cylindrical raceway; and
  - a drive roller assembly supported within the first and second cylindrical raceways, the drive roller assembly comprising:
    - first and second roller planets, each roller planet having raceways configured to engage the first and second cylindrical raceways;
    - a sun roller supported in frictional engagement with the first and second roller planets, the sun roller being eccentric to the first and second cylindrical raceways;
    - a first loading planet frictionally positioned between the sun roller and the first cylindrical raceway; and
    - a second loading planet frictionally positioned between the sun roller and the second cylindrical raceway.
2. The steering wheel mounting assembly of claim 1, further comprising a cover plate constructed and arranged to secure the drive roller assembly within the stationary support carrier.
3. The steering wheel mounting assembly of claim 2, wherein the cover plate comprises means for supporting at least one vehicle component.
4. The steering wheel mounting assembly of claim 3, wherein the supporting means comprise at least one connection hole.

5. A steering wheel mounting assembly, comprising:

a first drive ring member constructed and arranged to be mounted to a steering wheel;

a second drive ring member constructed and arranged to be mounted to a steering shaft;

a stationary support member constructed and arranged to receive the first and second drive ring members such that at least one component of the first drive ring member and at least one component of the second drive ring member are respectively free to rotate relative to the stationary support member; and

a drive roller assembly receivable by the stationary support member and comprising a plurality of rotatable elements, at least one of the rotatable elements being constructed and arranged to be in frictional contact with a portion of the first drive ring member and a portion of the second drive ring member,

wherein, in use, at least one of the rotatable elements is constructed and arranged to transfer rotational motion and torque between the first drive ring member and the second drive ring member.

6. The steering wheel mounting assembly of claim 5, wherein, in use, the drive roller assembly is constructed and arranged to substantially provide a 1:1 speed ratio between the first drive ring member and the second drive ring member.

7. The steering wheel mounting assembly of claim 5, wherein, in use, substantially zero backlash is produced at frictional contacts within the steering wheel mounting assembly.

8. The steering wheel mounting assembly of claim 5, wherein the rotatable elements comprise at least one roller planet, sun roller, and loading planet.

9. The steering wheel mounting assembly of claim 5, wherein the first drive ring member comprises a first drive ring having a first cylindrical raceway, and the second drive ring member comprises a second drive ring having a second cylindrical raceway.

10. The steering wheel mounting assembly of claim 9, wherein the rotatable elements comprise:

first and second roller planets, each roller planet having raceways configured to engage the first and second cylindrical raceways;

a sun roller supported in frictional engagement with the first and second roller planets, the sun roller being eccentric to the first and second cylindrical raceways;

a first loading planet frictionally positioned between the sun roller and the first cylindrical raceway; and

a second loading planet frictionally positioned between the sun roller and the second cylindrical raceway.

11. The steering wheel mounting assembly of claim 10, wherein the first and second loading planets are constructed and arranged to provide a preload on the sun roller.

12. The steering wheel mounting assembly of claim 5, further comprising means for securing the drive roller assembly within the stationary support member.

13. The steering wheel mounting assembly of claim 12, wherein the securing means comprise means for supporting a vehicle component.

14. The steering wheel mounting assembly of claim 13, wherein the vehicle component comprises an air bag assembly.

15. The steering wheel mounting assembly of claim 12, wherein the securing means comprise a plate member.

16. The steering wheel mounting assembly of claim 15, further comprising a tube member constructed and arranged to convey wires to the plate member.

17. The steering wheel mounting assembly of claim 5, wherein the first drive ring member comprises an inner race ring, an outer race ring, and rolling elements constructed and arranged to allow the inner race ring, in use, to rotate freely with respect to the outer race ring.

18. The steering wheel mounting assembly of claim 5, wherein the second drive ring member comprises an annular body and a shaft connector connected to the annular body.

19. A method of transmitting rotational motion and torque, comprising:

mounting a first drive ring member to a steering wheel;

mounting a second drive ring member to a steering shaft;

installing the first and second drive ring members in a stationary support member such that at least one component of the first drive ring member and at least one component of the second drive ring member are respectively free to rotate relative to the stationary support member; and

installing a plurality of rotatable elements in the stationary support member such that at least one of the installed rotatable elements is in frictional contact with a portion of the first drive ring member and a portion of the second drive ring member, and such that, in use, rotational motion and torque are transferred between the first drive ring member and the second drive ring member.

20. The method of claim 19, further comprising:

installing a plate member on the stationary support member; and

mounting a vehicle component on the plate member.